Conservation by Design: Promoting Resilient, Sustainable Lands and Waters in the Upper Midwest and Great Lakes

ILLINOIS NATURAL HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE

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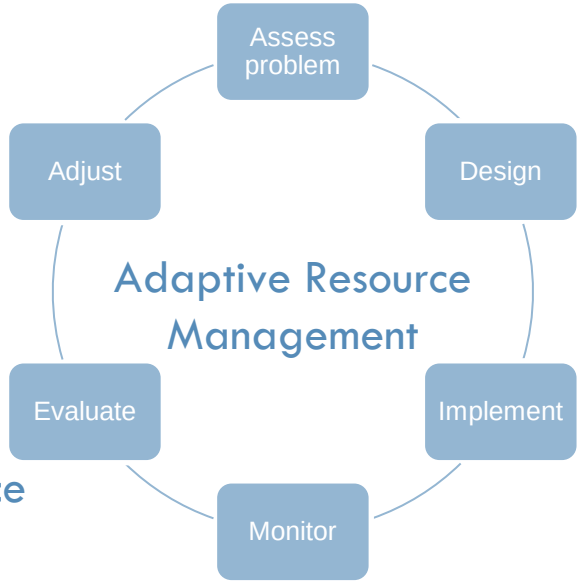
3/17/2016

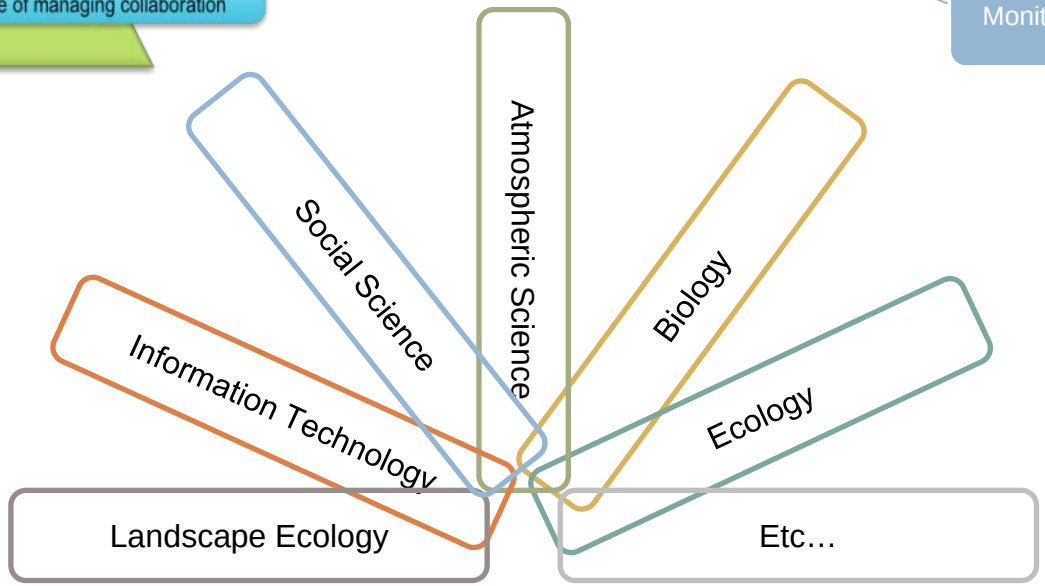
Mark A Davis


These challenges exceed the responsibility of any individual agency of program & require a new paradigm for how we approach them

The foundation for a 21st Century Conservation Paradigm

Kania and Kramer 2012





Landscape Conservation Design

Landscape Conservation Design (LCD) is an ***iterative***, ***collaborative***, and ***holistic process*** that provides information, analytical tools, spatially explicit data, and best management practices to develop shared conservation strategies and to achieve jointly held conservation goals among partners

Landscape Conservation Design

Shifts the paradigm from opportunistic random acts of conservation, to a strategic approach to leveraging partner capacities and resources to yield net gains in conservation

LCD Process

October 7, 2015

M-16-01

MEMORANDUM FOR EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: Shaun Donovan, Director
Office of Management and Budget

Christina Goldfuss, Managing Director
Council on Environmental Quality

John Holdren, Director
Office of Science and Technology Policy

SUBJECT: Incorporating Ecosystem Services into Federal Decision Making

Overview. Nature provides vital contributions to economic and social well-being that are often not traded in markets or fully considered in decisions. This memorandum provides direction to agencies on incorporating ecosystem services into Federal planning and decision making. (Broadly defined, ecosystem services are the benefits that flow from nature to people, e.g., nature's contributions to the production of food and timber; life-support processes, such as water purification and coastal protection; and life-fulfilling benefits, such as places to recreate.)

Potential Outputs & Outcomes

Tools

- Story Maps
- Wetland Prioritization Tool
- Spatial Data Layers

Portfolio

- Priority Management Areas
- Conservation & Human Well Being Targets and Goal

Strategy

- Strategic targeting of conservation $$$
- Long term net-gains in restoration/enhancement/protection
- Creative solutions to substantive issues

Collaborative Implementation

- Delivery to managers
- Collaborative application
- Leveraging implementation $$$

UMGL LCC Coastal Wetlands LCD

LANDSCAPE CONSERVATION COOPERATIVES

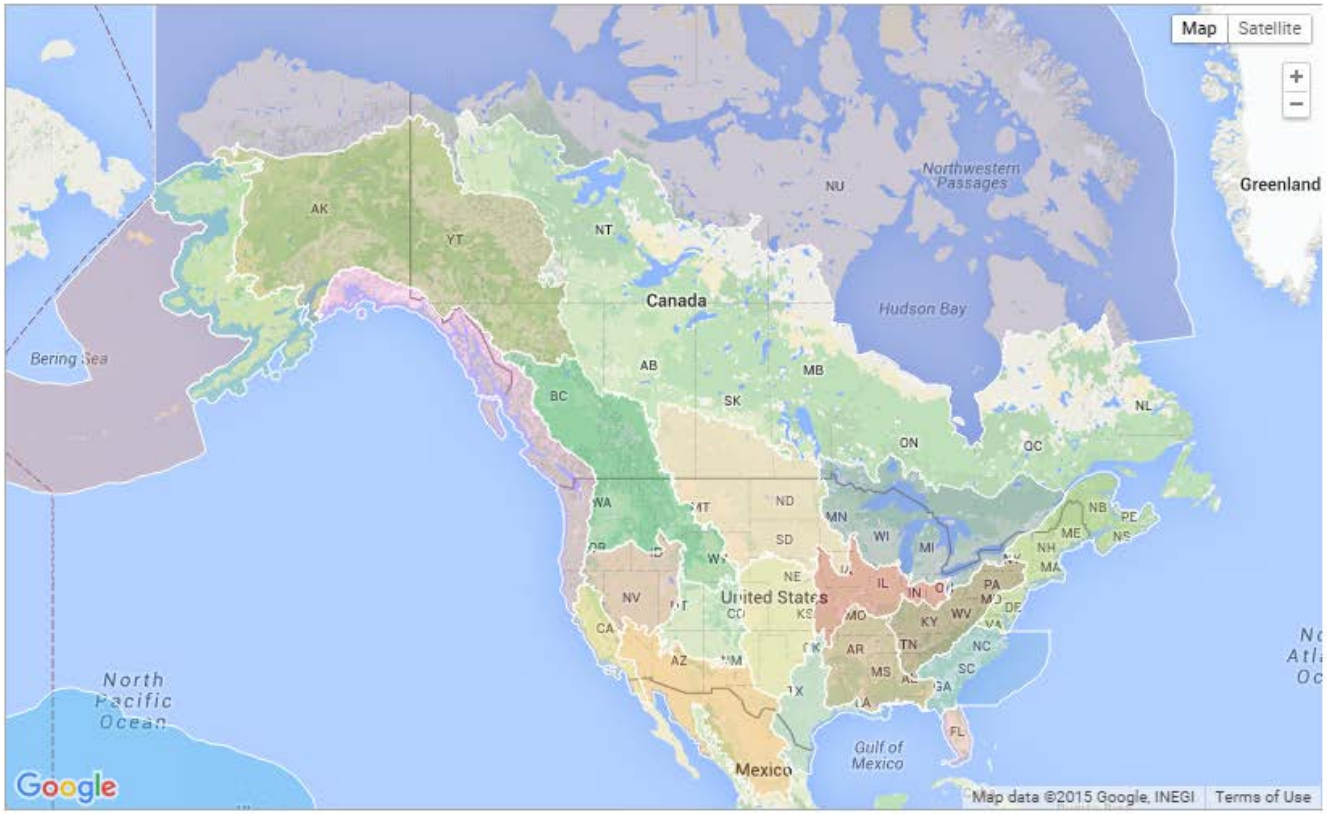
3/17/2016

GreatLakesLCC.org

The Landscape Conservation Cooperative Network

LANDSCAPE CONSERVATION COOPERATIVES

Vision: Landscapes capable of sustaining natural and cultural resources for current and future generations.



- Aleutian and Bering Sea Islands
- Appalachian
- Arctic
- California
- Caribbean
- Desert
- Eastern Tallgrass Prairie and Big Rivers
- Great Basin
- Great Northern
- Great Plains
- Gulf Coast Prairie
- Gulf Coastal Plains and Ozarks
- North Atlantic
- North Pacific
- Northwest Boreal
- Pacific Islands
- Peninsular Florida
- Plains and Prairie Potholes
- South Atlantic
- Southern Rockies
- Upper Midwest and Great Lakes
- Western Alaska


Lake Superior
National Estuarine Research Reserve


GRAND VALLEY STATE UNIVERSITY


ILLINOIS SUSTAINABLE TECHNOLOGY CENTER
PRAIRIE RESEARCH INSTITUTE


Saginaw Chippewa Indian Tribe of Michigan


USGS
science for a changing world


CMU


CENTRAL MICHIGAN UNIVERSITY
NORTHLAND COLLEGE
New College
THE HONORS COLLEGE of Florida


U.S. DEPARTMENT OF THE INTERIOR
MARCH 3, 1849


U.S. FISH & WILDLIFE SERVICE


ILLINOIS NATURAL HISTORY SURVEY


Chicago Wilderness


NATIONAL FISH HABITAT PARTNERSHIP


FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE


UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

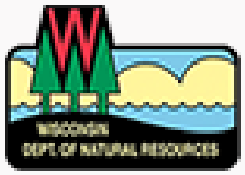

DNR


NOAA


PENNSYLVANIA FISH & BOAT COMMISSION


The Nature Conservancy


DEPARTMENT OF NATURAL RESOURCES
DNR
MICHIGAN


WISCONSIN
DEPT. OF NATURAL RESOURCES


OHIO DEPARTMENT OF NATURAL RESOURCES


NECSC
Northeast Climate Science Center


DUCKS UNLIMITED


DCNR


Minnesota
DEPARTMENT OF NATURAL RESOURCES


PENNSYLVANIA GAME COMMISSION


ILLINOIS
DEPARTMENT OF NATURAL RESOURCES


NRCS Natural Resources Conservation Service


JOINT VENTURE


DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NEW YORK STATE


DNR


Great Lakes Fishery Commission

Though high-quality coastal wetlands remain, traditional functions & values associated with other Great Lakes coastal wetlands have been lost and/or degraded, diminishing their capacity to provide ecosystem services including mitigation of negative environmental influences

LCD Process

Set targets & goals

- WHY: Use human well-being targets with conservation targets to meet multiple goals; engage new partners to advance aligned goals faster.
- WHAT: This project maps where we can work to benefit nature and people, ultimately yielding an optimization model & map

Gather data

- WHERE: Saginaw Bay to Old Woman Creek.
- HOW: One-on-one stakeholder meetings, vet concept; build datasets where none existed to translate goals.
  - clean data, format for analyses

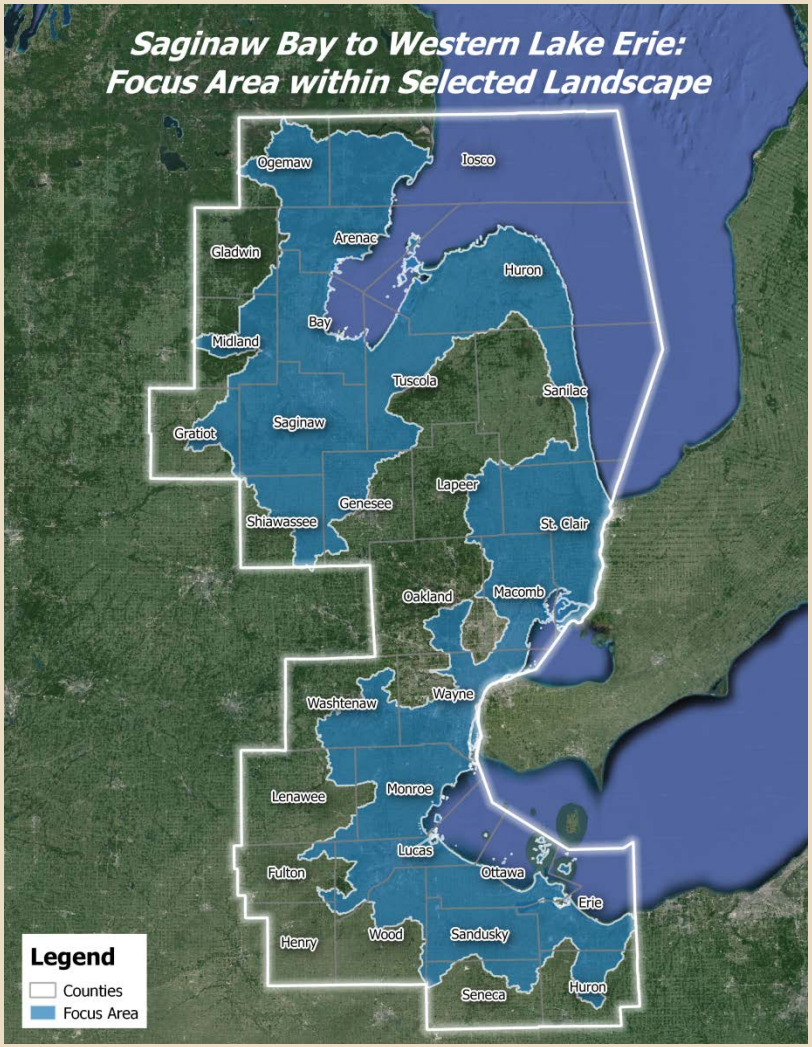
Analysis & map

- Iterations with core team
- Develop website, factsheets, messaging
- Workshop: vet inputs and outputs with stakleholders
- Adapt, refine and share improved outputs.
- Assessed goal status to further refine where to work to fill specific "gaps"/advance specific goals.
- Identified focal areas/investment hotspots.
- Update website, include data viewer to serve data layers and output.

Implement

- Meetings
- Wetland mitigation banking as a new financing mechanism for priority areas
- Map → inform coastal community resilience planning & implementation
- Develop project-tracking and goal-tracking process - disseminate via Great lakes INFORM.

Why Here?

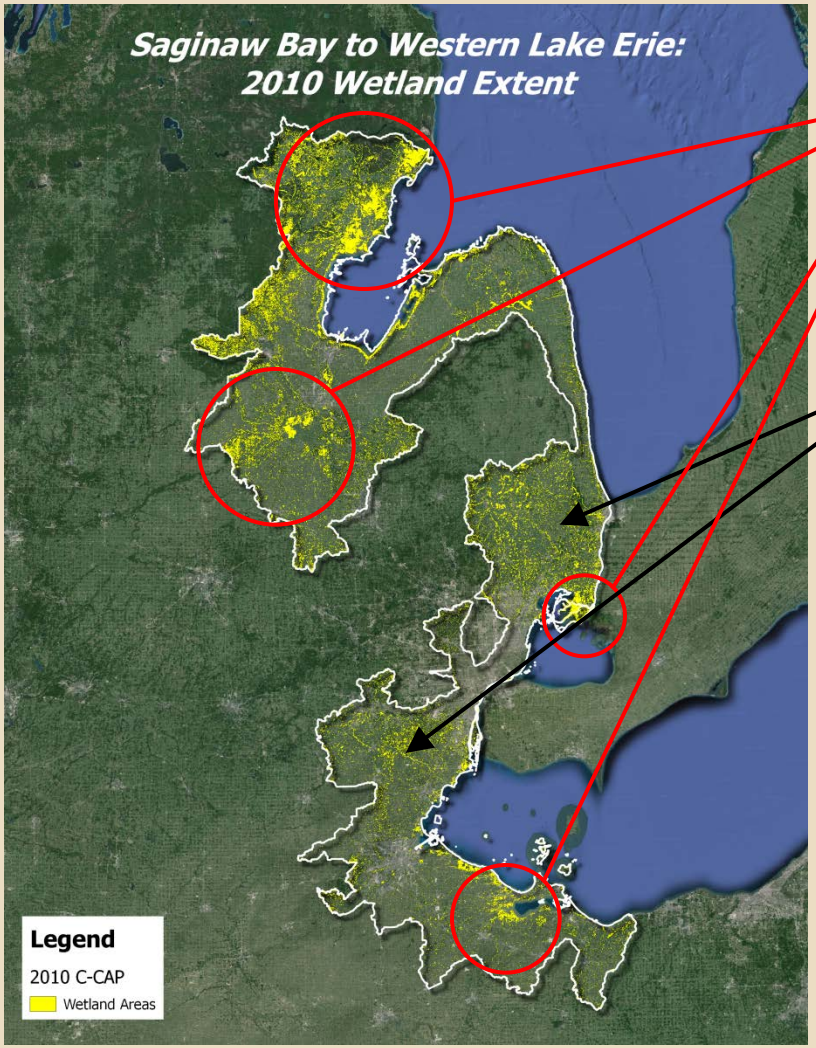


Large area → ~ same area as Maryland

> 800,000 acres of wetlands…slightly larger than Rhode Island!

High diversity of wetlands

CURRENT WETLANDS



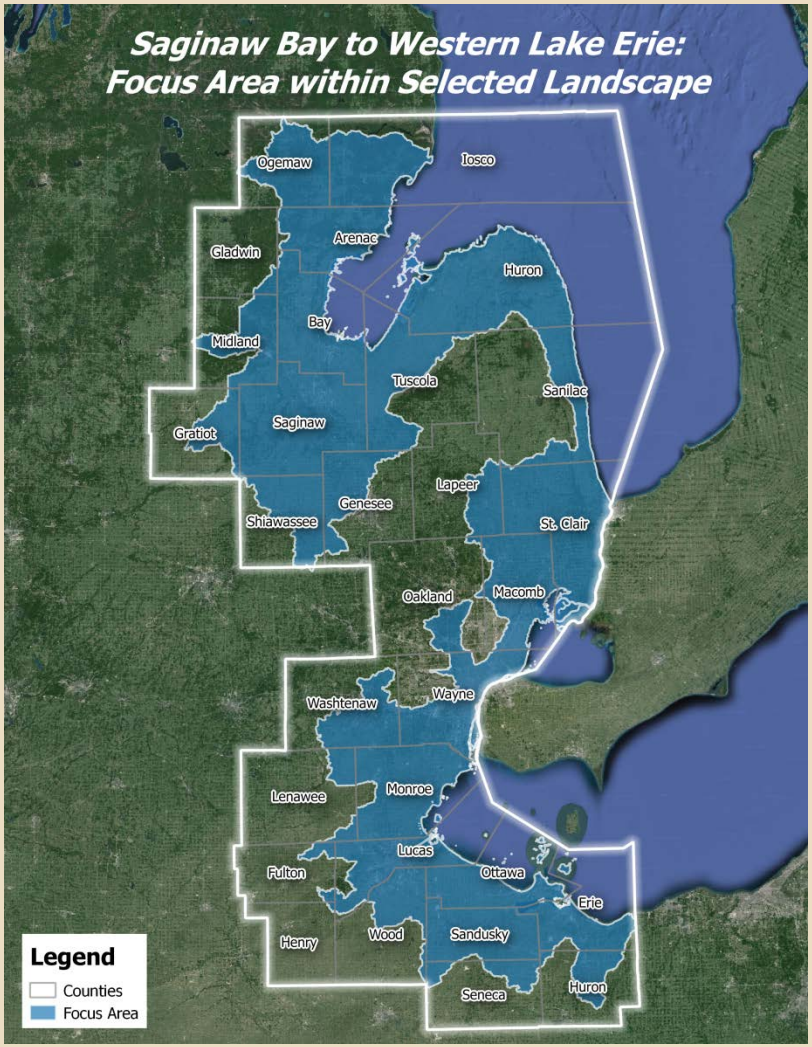
Large wetland complexes

Sporadic upland distribution

Wetland Area in 2010:
~804,654 acres

~13% of the total focus area

Why Here?

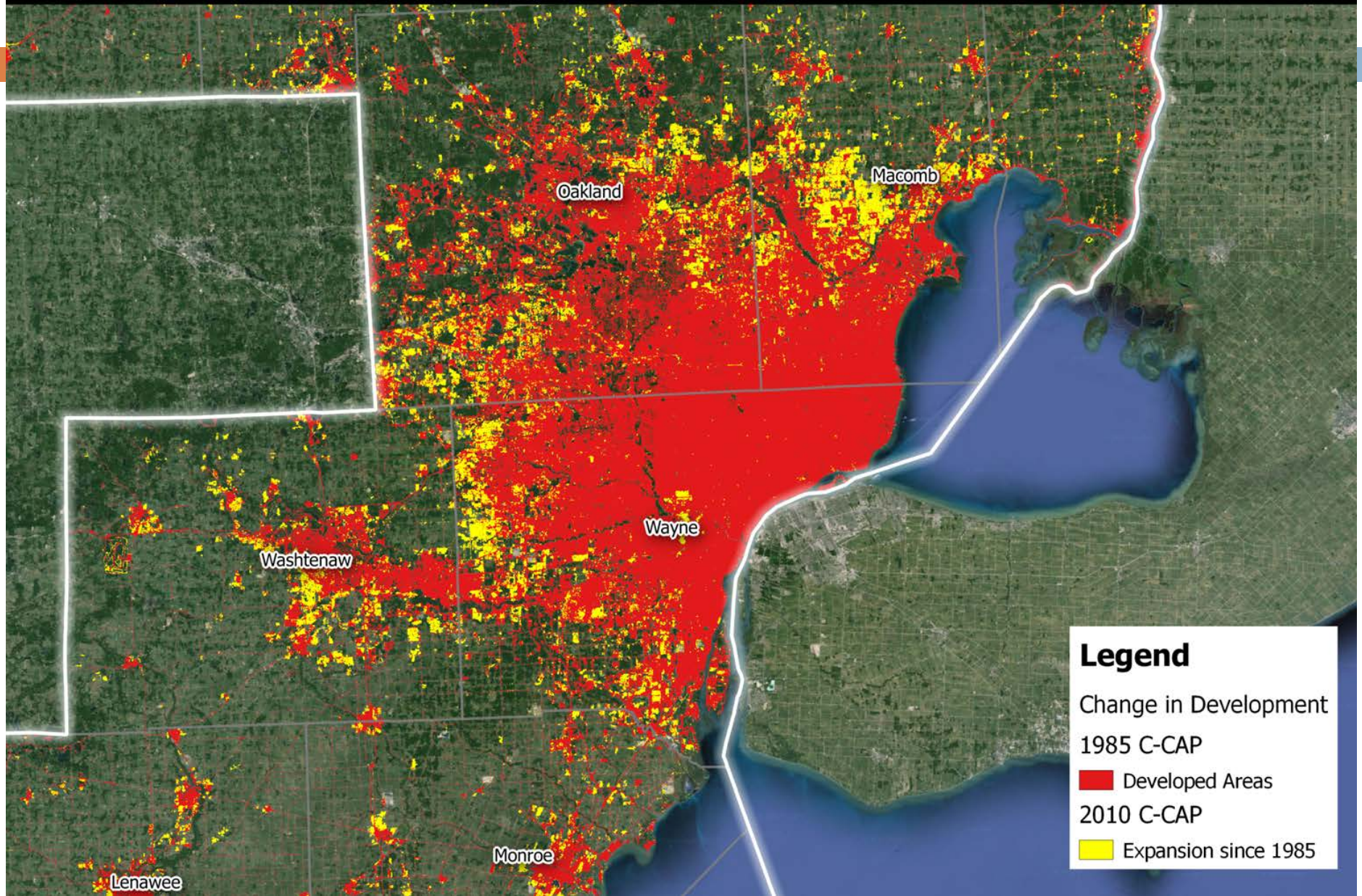


2 states, 30 counties, 2 large urban centers (Detroit, Toledo)

MANY organizations actively working in coastal wetlands

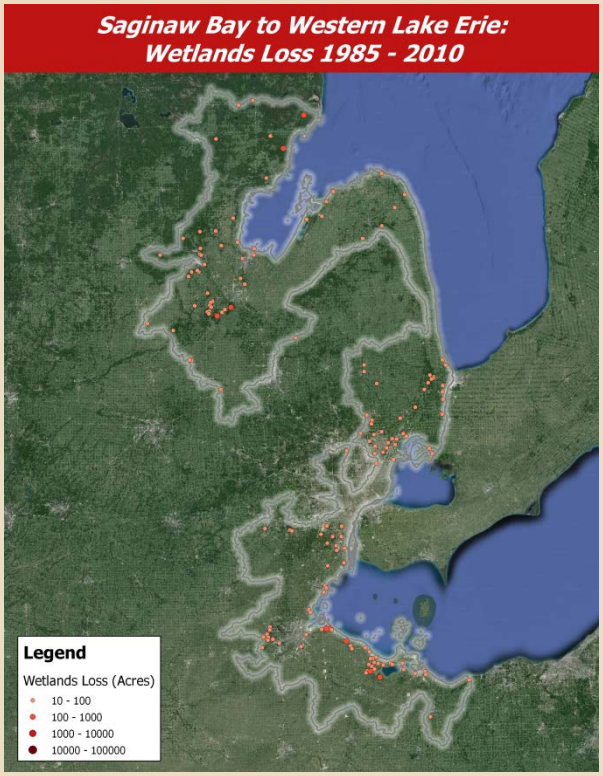
Amazing capacity to collectively attain shared goals and objectives

Detroit Metro Area: Urban Expansion 1985 - 2010

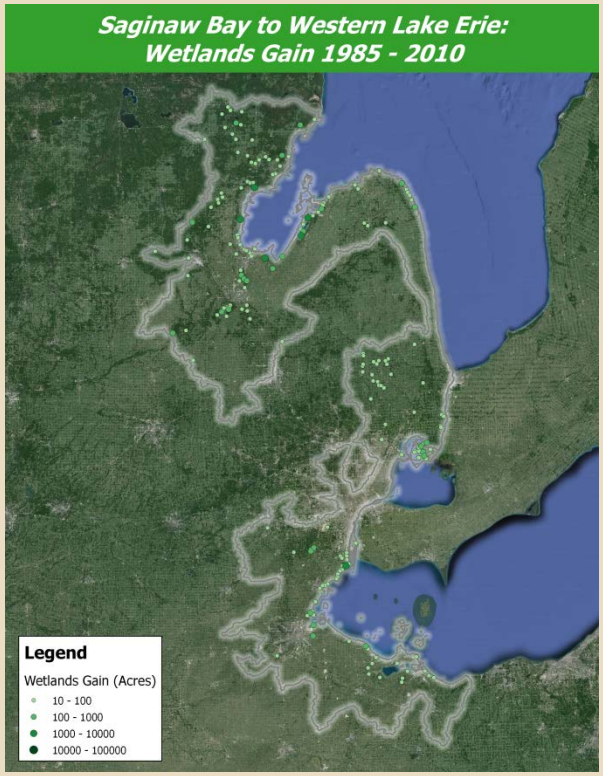


Why now?

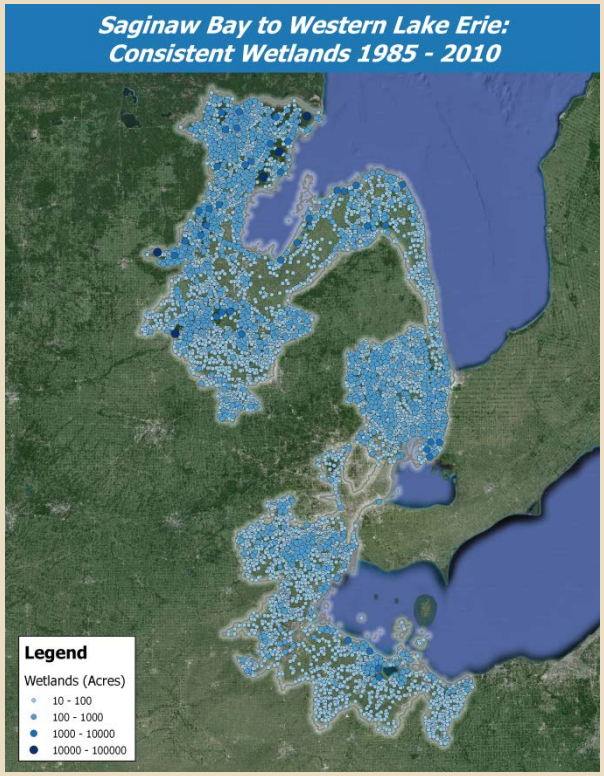
Restore



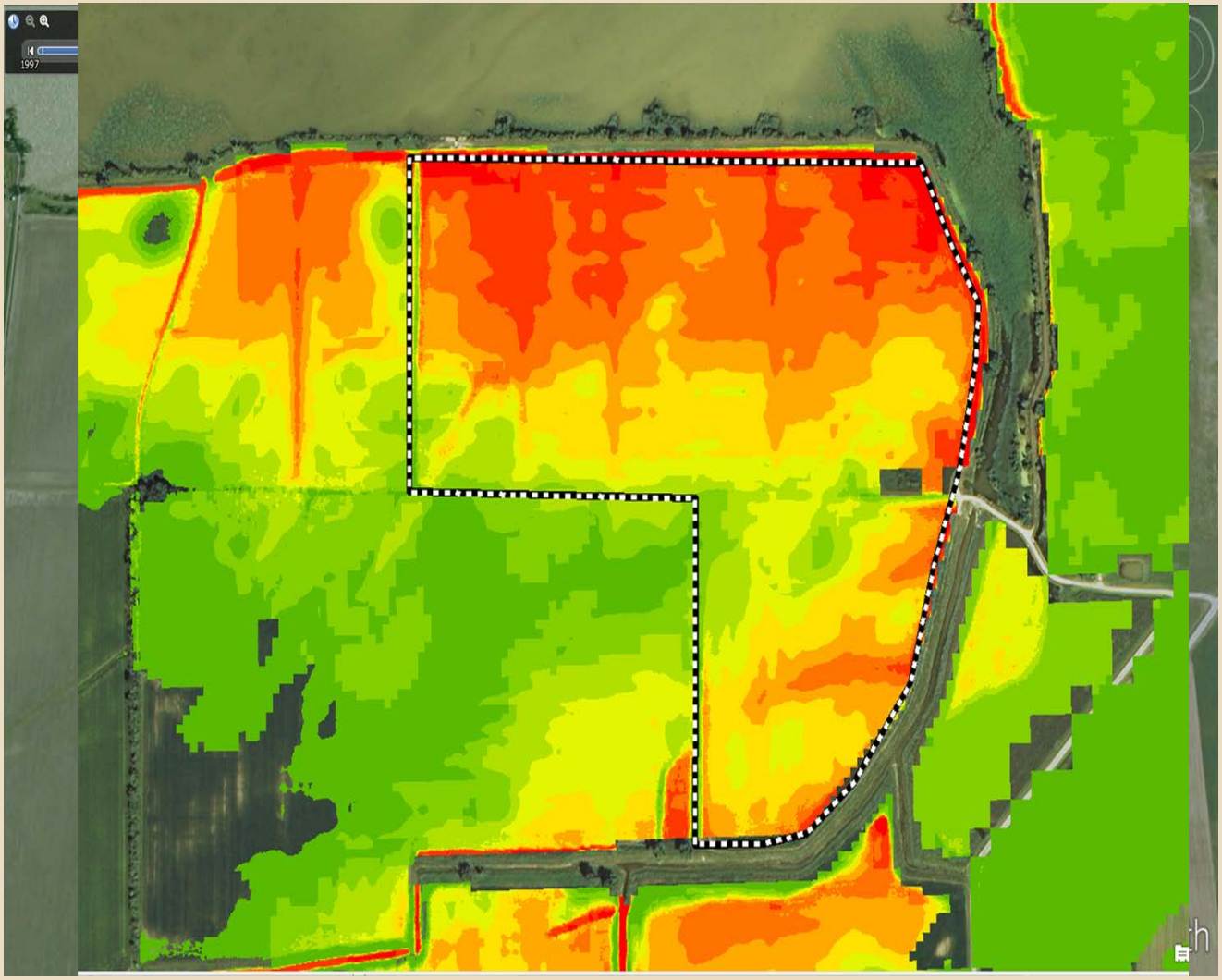
Protect



Enhance



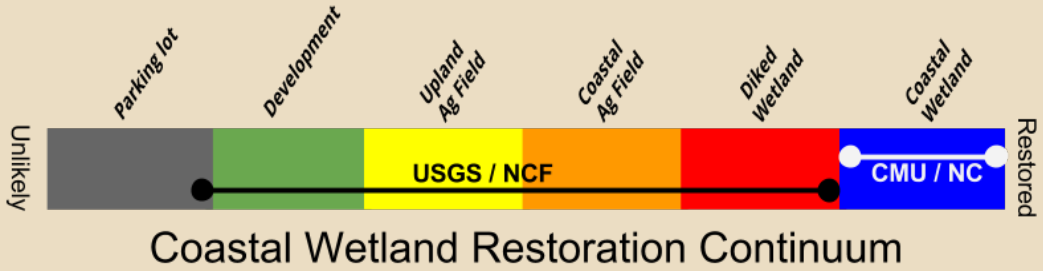
Outputs: Potentially Restorable Wetlands



Outcomes: Coastal Wetland Prioritization Tool

Goals

- Strategic investments
- Maximize ROI
- Resilient ecosystems



Coastal Wetland Restoration Continuum

Prospective users

- LCC CCWG
- Conservation planners
- Funding agencies
- Restoration practitioners


Nayanquing Point, Saginaw Bay

Successes

- Resilient Lands and Watersheds Initiative recognition

EPA United States Environmental Protection Agency

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News Releases By Date

DOI, EPA, NOAA announce Resilient Lands and Waters Initiative to prepare natural resources for climate change

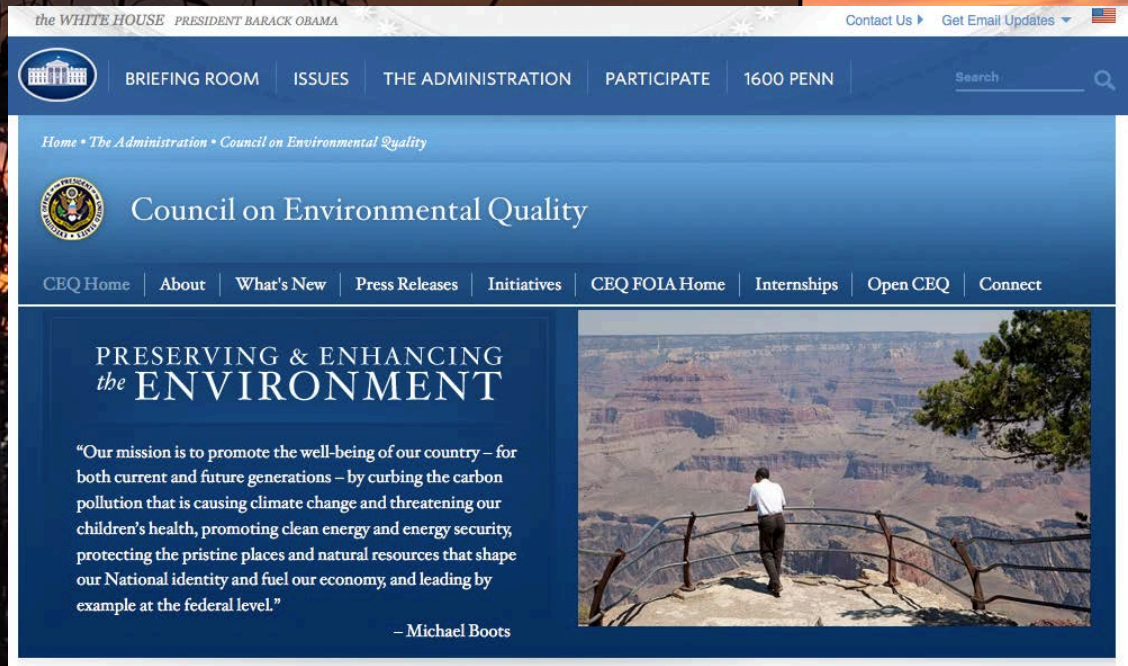
Release Date: 04/21/2015
Contact Information: press@epa.gov

Sites in southwest Florida, Hawaii, Washington, and the Great Lakes selected to showcase climate resilience approach

WASHINGTON, D.C. – The Department of the Interior (DOI), Environmental Protection Agency (EPA), and the National Oceanic and Atmospheric Administration (NOAA) today recognized four collaborative landscape partnerships across the country where Federal agencies will focus efforts with partners to conserve and restore important lands and waters and make them more resilient to a changing climate. Building on existing collaborations, these Resilient Lands and Waters partnerships – located in southwest Florida, Hawaii, Washington and the Great Lakes region – will help build resilience in regions vulnerable to climate change and related challenges. They will also showcase the benefits of landscape-scale management approaches and help enhance the carbon storage capacity of these natural areas

Successes

- Resilient Lands and Watersheds Initiative recognition
- White House CEQ → Implementation Funding



Successes

- Resilient Lands and Watersheds Initiative recognition
- White House CEQ → Implementation Funding
- Exporting process to other geographies

Lower Fox River & Green Bay LCD

3/17/2016

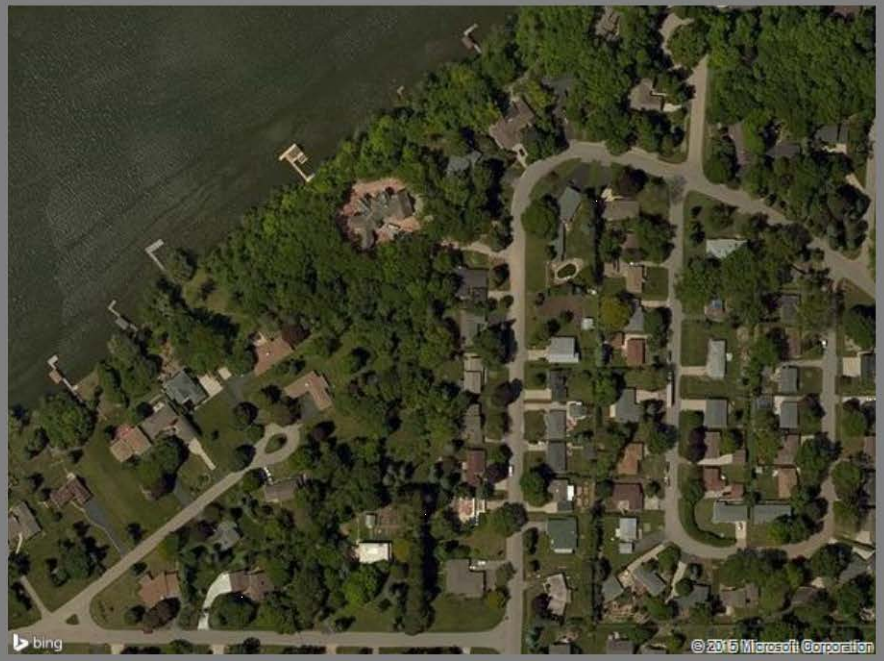
GBconservationpartners.org

The Lower Fox River/Green Bay Ecosystem is challenged by nutrient loading, habitat degradation, and other stressors, but a deep and rich outdoor heritage and tradition of collaboration yields great potential for tremendous collective impact to improve the system for current and future generations


Brown County LWCD


US FWS photo


DANGER
FLOATING
PIPELINE
US EPA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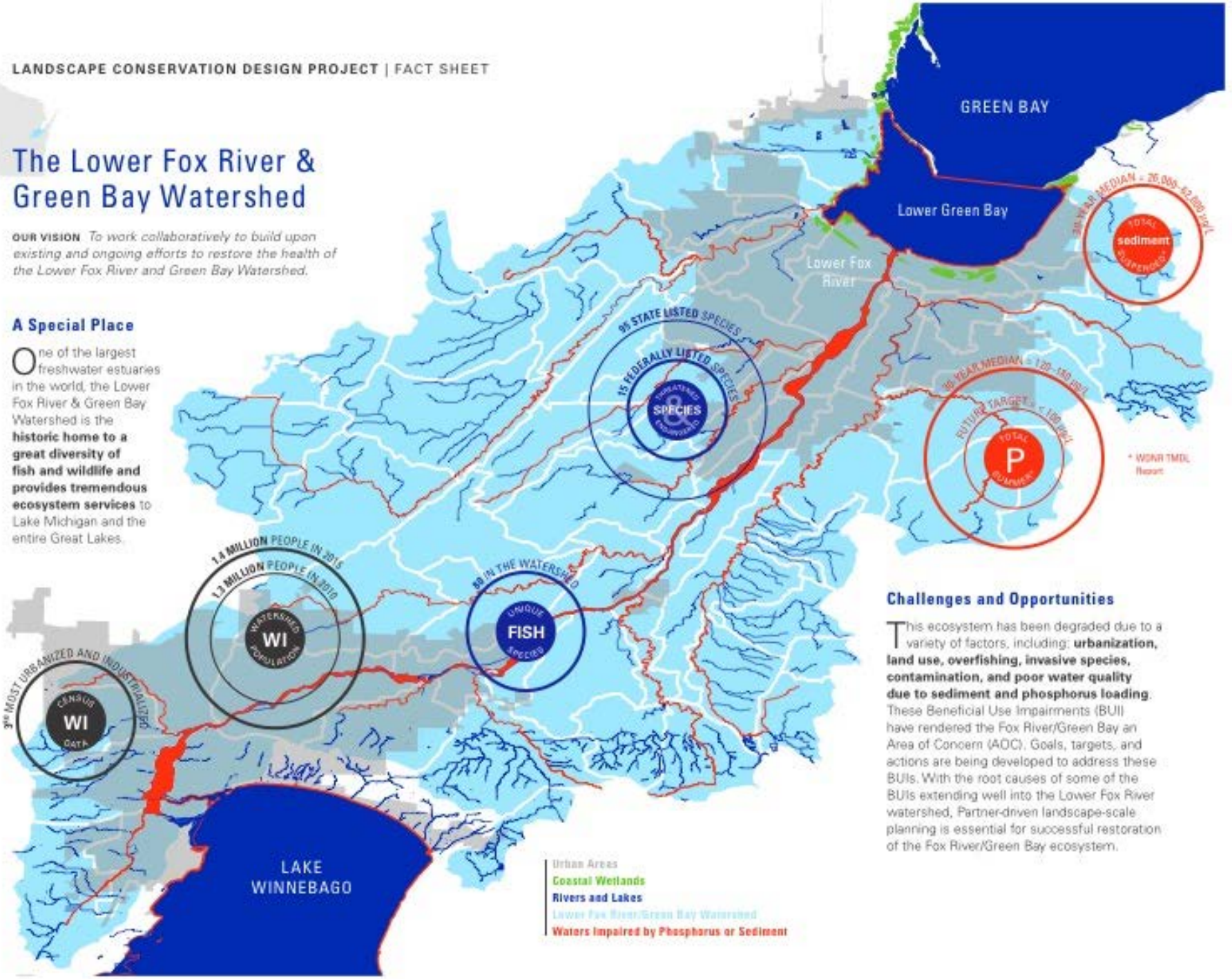
The Lower Fox River & Green Bay Watershed

OUR VISION *To work collaboratively to build upon existing and ongoing efforts to restore the health of the Lower Fox River and Green Bay Watershed.*

A Special Place

One of the largest freshwater estuaries in the world, the Lower Fox River & Green Bay Watershed is the **historic home to a great diversity of fish and wildlife and provides tremendous ecosystem services** to Lake Michigan and the entire Great Lakes.

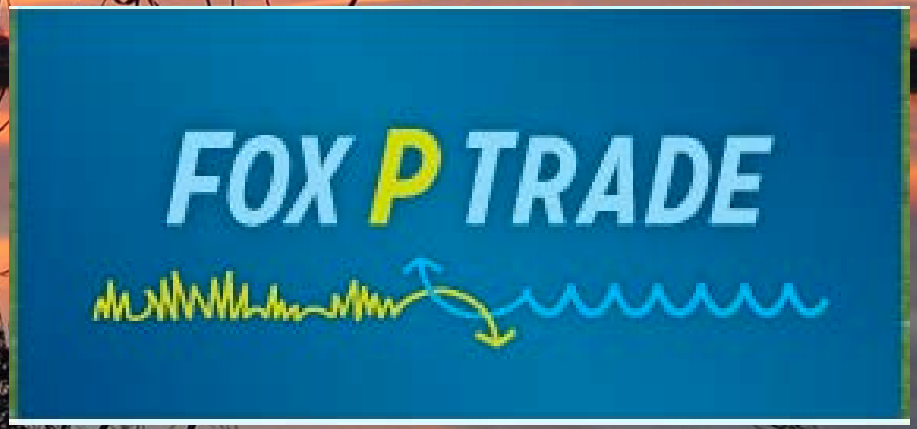


Challenges and Opportunities

This ecosystem has been degraded due to a variety of factors, including: **urbanization, land use, overfishing, invasive species, contamination, and poor water quality due to sediment and phosphorus loading**. These Beneficial Use Impairments (BUI) have rendered the Fox River/Green Bay an Area of Concern (AOC). Goals, targets, and actions are being developed to address these BUIs. With the root causes of some of the BUIs extending well into the Lower Fox River watershed, Partner-driven landscape-scale planning is essential for successful restoration of the Fox River/Green Bay ecosystem.

Creative Solutions

- Market-based model → Fox River Phosphorus Trading Program



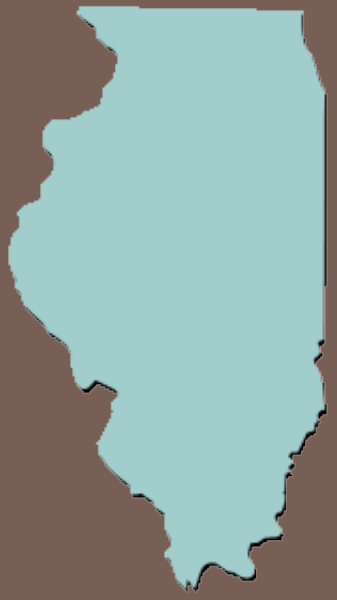
Creative Solutions

- Market-based approach
- Innovative approaches → Demonstration Farm Network

Creative Solutions

- Market-based approach
- Innovative approaches
- Strategic Partnerships

Resilient Watersheds Initiative



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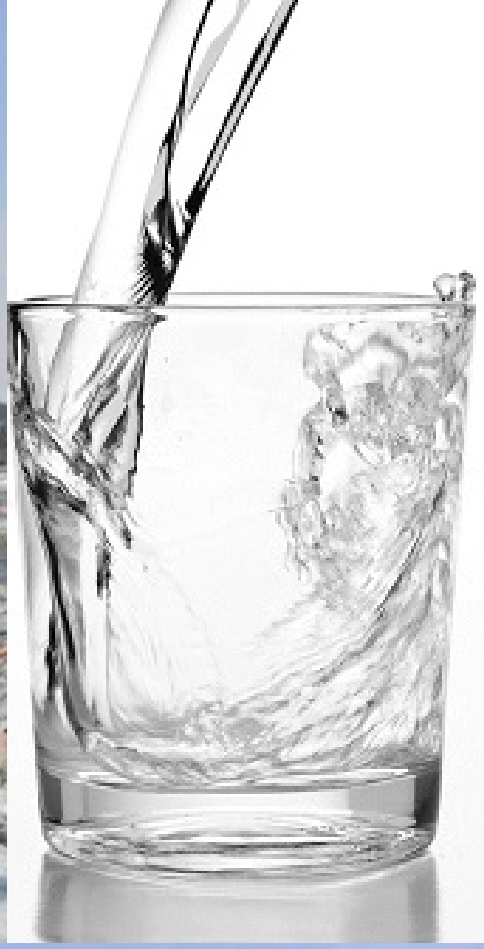
U.S. COAST GUARD



Resilient Watersheds Initiative

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Value-based Landscape Design

Sea Grant ILLINOIS - INDIANA

Coupled Models

UIUC/NGRREC Researchers

Decision Support Tools

IISG

Local Workshops

UIUC Extension

Extramural Science Funding Opportunities

RWI Funding Expansion Opportunities

Advantages of V-bLD?

Combines ***geospatial data*** with ***biological information*** and models to create tools (including maps) that evaluate the potential of every acre of a watershed to support ecosystem services

Advantages of V-bLD?

V-bLD explicitly ties ***watershed values*** (e.g. swimmable, fishable, drinkable, productive watersheds) with ***ecosystem functions*** (e.g. carbon sequestration, water storage & filtration, groundwater recharge, etc.)

Concluding Remarks

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Mark A Davis

Lessons Learned

- Changing the model → Ecology + Human Dimensions
- Success requires strategic partnerships built at every phase
- Successful integration yields leveraging opportunities
- The only certainty is uncertainty

Lessons Learned

- Well articulated value added statement key
- Standing on the shoulders of giants → recognition & integration of previous work
- Opportunity for innovation at a large scale

Discussion